Carbonyl Iron Powder for Diamond Tools
Thanks to their outstanding fineness and homogeneity, our well-known high-quality CIP grades contribute to superior tool BASF’s excellent batch-to-batch consistency helps our customers to efficiently run their production processes.

Our CIP grades for high-quality Diamond Tools

Carbonyl Iron Powder (CIP) based bonds provide enhanced economic and ecological performance over cobalt binders. The exceptional fineness and homogeneity of BASF’s CIP grades ensure outstanding compactibility, resulting in higher density and green strength. Furthermore, due to its high sinter activity CIP made by BASF allows for lowering of sintering temperatures and shortening of sintering cycles, thereby reducing exposure of the diamond during the production process. BASF’s CIP grades are purified in a distillation process leading to higher quality diamonds in a synthetic diamond production.

The exceptional fineness and homogeneity of BASF’s CIP grades ensure outstanding compactibility, resulting in higher density and green strength. Furthermore, due to its high sinter activity CIP made by BASF allows for lowering of sintering temperatures and shortening of sintering cycles, thereby reducing exposure of the diamond during the production process. BASF’s CIP grades are purified in a distillation process leading to higher quality diamonds in a synthetic diamond production.

BASF’S CIP GRADES

Our CIP CN soft grade is the allrounder among BASF’s CIP grades for Diamond Tools. It is used by most customers for its excellent compactibility and sintering properties. CIP CN provides high density and bond hardness and is suitable for cold and hot pressing. CIP EN offers an alternative to CIP CN. As a hard grade it can be used to reduce ductility of the metal bond. CIP SM, an even finer grade, is optimal for use in segment backings for laser welding.

Our ultrafine H grades are used for highest density and bond quality. Iron Phosphide increases hardness, cutting speed and diamond grip and is therefore a suitable replacement for cobalt. It is available with 10% phosphorous content (FeP10%).

<table>
<thead>
<tr>
<th>Grade</th>
<th>Fe min. (%)</th>
<th>C max. (%)</th>
<th>N max. (%)</th>
<th>O max. (%)</th>
<th>d10 (mic.)</th>
<th>d50 (mic.)</th>
<th>d90 (mic.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEP CN</td>
<td>99.5</td>
<td>0.03</td>
<td>0.01</td>
<td>0.10−0.25</td>
<td>3.6−4.0</td>
<td>6.5−8.0</td>
<td>19−27</td>
</tr>
<tr>
<td>CEP EN</td>
<td>97.5</td>
<td>1</td>
<td>0.06</td>
<td>3.9−5.2</td>
<td>6</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>CEP FEP10%</td>
<td>87</td>
<td>0.4−0.8</td>
<td>0.2</td>
<td>1.2</td>
<td>3</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>CEP SM</td>
<td>99</td>
<td>0.1</td>
<td>0.05</td>
<td>2.1</td>
<td>3.5</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>CEP HF</td>
<td>97.8</td>
<td>0.6−0.9</td>
<td>0.0−0.9</td>
<td>0.3−0.5</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>CEP HQ</td>
<td>97.5</td>
<td>1</td>
<td>0.05</td>
<td>1.8−2.3</td>
<td>3</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>CEP HS</td>
<td>99</td>
<td>0.1</td>
<td>0.05</td>
<td>2.1</td>
<td>3.5</td>
<td>3.5</td>
<td></td>
</tr>
</tbody>
</table>

ADVANTAGES OF CIP BY BASF

Inductive Electronic Components
Metal Injection Molding and Powder Metallurgy
Microwave and Radar Absorption
Diamond Tools

Typical Properties of CIP grades for high-quality Diamond Tools

Our CIP grades for high-quality Diamond Tools

Thanks to their outstanding fineness and homogeneity, our well-known high-quality CIP grades contribute to superior tool BASF’s excellent batch-to-batch consistency helps our customers to efficiently run their production processes.
Please contact us to discuss the requirements of your CIP application.

**BASF SE**
Carbonyl Iron Powder & Metal Systems
G-CA/MM
67056 Ludwigshafen
Germany

For information, please send an e-mail to:
inorganics@basf.com

Visit our website at:
www.carbonylironpowder.com

**Asia**
BASF East Asia
Regional Headquarters Ltd.
Hong Kong, China
Phone: +852 2731 3706

**USA**
BASF Corporation
Evans City, PA, USA
Phone: +1 724 538 1300

**Note**
The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed. (03/2012)

® = Registered trademark of BASF SE